

REMARKS

Entry of the foregoing, and further examination and reconsideration of the subject application are respectfully requested. Claims 1-40 are pending in the application. Claims 9-12 and 16-40 have been withdrawn from consideration by the Examiner in response to a restriction requirement. The amendment to the specification does not add any new matter.

Paragraph [0028] of the description has been amended to correct a minor spelling error as requested by the Examiner. Further, in accordance with the Examiner's request, Applicants have reviewed the specification for errors.

Applicants further appreciate Examiner Haley's time in clarifying that the rejection listed as Item 10 in the Office Action was based on obviousness criteria under 35 U.S.C. §103(a) instead of novelty (anticipation) criteria under 35 U.S.C. §102.

Restriction Requirement

Applicants acknowledge the Examiner's statements regarding the election / restriction requirement.

Rejection of Claims 13-15 under 35 U.S.C. §112

Claims 13-15 have been rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter Applicants regard as the invention. Applicants respectfully traverse the rejection and the statements made in support thereof.

The Office Action states that claims 13-15 do not specifically recite any limitations as to how a "catalyst" is actually obtained. Applicants respectfully disagree and refer the Examiner to language throughout the application which indicates that the carbonized polysulfonated vinylaromatic polymer particles of the instant invention may be catalysts themselves or serve as catalyst supports. In particular, the Examiner's attention is directed to paragraph [0012] of the instant description which states in part:

The catalysts of our invention provide a hard, attrition-resistant, high surface area, spherical carbon derived from the pyrolysis of polysulfonated divinylbenzene-styrene

copolymer particles, which can act as supports for active catalyst components or be active catalysts by themselves.

Because the carbonized polysulfonated vinylaromatic polymer particles can, in fact, be a catalyst, Applicants submit that the process steps of claims 13-15 distinctly set forth the steps needed for the preparation of the fluidizable catalysts of the invention. Applicants, therefore, respectfully request reconsideration and withdrawal of the rejection.

Rejection of Claims 1-5 and 13-15 under 35 U.S.C. 103(a)

Claims 1-5 and 13-15 stand rejected under 35 U.S.C. 103(a) in view of U.S. Patent No. 4, 839,331 to Maroldo et al ("Maroldo"). Applicants respectfully traverse the rejection and the statements made in support thereof.

Maroldo discloses carbonized adsorbent particles having multimodal pore size, including micropores and macropores, with improved adsorptive and separative properties, prepared by partial pyrolysis of polysulfonated macroporous precursor resins. These resins are prepared from macroporous poly(vinylaromatic) resins. The particles may be further activated with reactive gases or by functionalization. The disclosure of Maroldo, however, as correctly noted by the Examiner, is silent regarding fluidizable carbonized particles and does not teach or suggest carbonized particles having an average particle size of 1 to about 200 μm as set forth in the instant invention. The Examiner, however, attempts to overcome this deficiency by asserting that the particle size ranges claimed in the present invention are suggested in Maroldo because of some similarities in other properties of the carbonized particles such as, for example, pore size and surface area. The Office Action further suggests that the particles disclosed by Maroldo must inherently possess the range of particle size as claimed by Applicants, again because of the similarity of these other properties.

Applicants respectfully disagree with this line of reasoning. Maroldo explicitly discloses that the particle size of the starting resin before sulfonation is from 0.85 to 2.5 mm (850 to 2500 μm) (see Maroldo, col. 6, lines 41-45). The sulfonation step would not be expected to alter this particle size materially. Thus, the carbonized particles prepared

by Maroldo are at least an order of magnitude larger than the particles claimed in the instant invention. The particles disclosed in Maroldo, therefore, could not inherently possess claimed the particle size range as asserted in the Office Action. In addition, the dramatically larger particle size range disclosed by Maroldo would not have taught or suggested the much smaller average particle diameter range of the claimed invention. In fact, based on the disclosure of Maroldo, the skilled person would have been steered toward particles having a much larger particle size. In other words, Maroldo would have taught distinctly away from Applicants invention. Because the cited art would not have taught or provided the requisite suggestion or motivation to a skilled person to make the claimed invention, Applicants believe the invention is patentable over the cited art and respectfully request that the rejection be withdrawn.

Rejection of Claims 6-8 under 35 U.S.C. §103(a)

Claims 6-8 have been rejected under 35 U.S.C. §103(a) over U.S. Patent No. 6,452,043 to Zoeller et al. ("Zoeller") in view of U.S. Patent No. 4,839,331 to Maroldo et al ("Maroldo"). Applicants respectfully traverse the rejection and the statements made in support thereof.

The deficiencies of Maroldo in rendering the present invention obvious have been set forth above and are incorporated herein by reference. The disclosure of Zoeller does not remedy these deficiencies. Like Maroldo, the disclosure of Zoeller fails to teach or suggest a fluidizable catalyst comprising carbonized, polysulfonated vinylaromatic polymer particles having an average particle diameter of about 10 to about 130 μm . In fact, the only particle size range mentioned in Zoeller is for the commercially available AMBERSORB carbonaceous adsorbents (col. 9, lines 9-12), which are disclosed as having a 20-50 mesh size (841 μm to 297 μm). There is simply no teaching or suggestion of fluidizing the carbonized particles or of using carbonized particles having an average particle diameter as claimed by Applicants. Thus, Zoeller, either alone or in any reasonable combination with Maroldo, would not have suggested or directed the person of ordinary skilled in the art to make the claimed invention.

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Applicants respectfully submit that the rejection is in error and request that it be withdrawn.

Rejection of Claims 6-8 under 35 U.S.C. §103(a)

Claims 6-8 have been rejected under 35 U.S.C. §103(a) over U.S. Patent No. 6,235,673 to Zoeller et al. ("Zoeller") in view of U.S. Patent No. 4,839,331 to Maroldo et al ("Maroldo"). Applicants respectfully traverse the rejection and the statements made in support thereof.

The shortcomings of Maroldo in rendering the present invention obvious have been set forth above and are incorporated herein by reference. The disclosure of Zoeller does not cure these shortcomings. Like Maroldo, Zoeller does not teach or suggest a fluidizable catalyst comprising carbonized, polysulfonated vinylaromatic polymer particles having an average particle diameter of about 10 to about 130 μm . The catalysts disclosed in Zoeller are prepared from commercially available AMBERSORB carbonaceous adsorbents (col. 9, lines 9-12) having a 20-50 mesh size (841 μm to 297 μm). As noted earlier, this range is well outside the claimed range for Applicants' carbonized particles and would not have taught or suggested Applicants' invention. There is nothing, therefore, in the disclosure of Zoeller, either alone or in combination with Maroldo, that would have pointed the skilled person to the claimed invention.

Applicants respectfully submit that the Examiner fails to make a *prima facie* case of obviousness. As set forth above, none of the cited references, either individually or in any reasonable combination, would have taught a fluidizable, carbonized, polysulfonated vinylaromatic polymer particles having an average particle diameter of about 1 to about 200 μm or, in the case of claims 6-8, an average particle diameter of about 10 to about 130 μm . Further, the cited references necessarily would not have provided a reasonable expectation of success since they lack any suggestion or teaching of the limitations of Applicants' catalyst. Applicants thus respectfully request reconsideration and withdrawal of the rejection.

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In summary, applicant believes the application to be in condition for allowance. Accordingly, the Examiner is respectfully requested to reconsider the application, remove all rejections, and pass the application to issuance.

Respectfully submitted,

/Eric D. Middlemas/

Eastman Chemical Company
P.O. Box 511
Kingsport, Tennessee 37662
Phone: (423) 229-6427
FAX: (423) 229-1239

Eric D. Middlemas
Registration No. 53,325

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